

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 18 May 2001 (18.05.01)	
International application No. PCT/AU00/01015	Applicant's or agent's file reference MC:SS:001414
International filing date (day/month/year) 28 August 2000 (28.08.00)	Priority date (day/month/year) 27 August 1999 (27.08.99)
Applicant SCOTT, Geoffrey, Sydney et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
27 March 2001 (27.03.01)

☐ in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Claudio Borton Telephone No.: (41-22) 338.83.38
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**PATENT COOPERATION TREATY**  
**PCT**  
**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**  
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference stocas001414	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU00/01015	International Filing Date (day/month/year) 28 August 2000	Priority Date (day/month/year) 27 August 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. <sup>7</sup> B25F 3/00, 5/00; B06B 1/04; A01D 34/412, 34/416, 42/06; A47L 11/14, 11/28, 11/283, 11/40		
Applicant STOCAS AUSTRALIA PTY LTD et al.		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 6 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.15 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 11 sheet(s).
3.	This report contains indications relating to the following items:
I	<input checked="" type="checkbox"/> Basis of the report
II	<input type="checkbox"/> Priority
III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	<input type="checkbox"/> Lack of unity of invention
V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	<input type="checkbox"/> Certain documents cited
VII	<input checked="" type="checkbox"/> Certain defects in the international application
VIII	<input checked="" type="checkbox"/> Certain observations on the international application

Date of submission of the demand 27 March 2001	Date of completion of the report 3 August 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  L. DESECAR Telephone No. (02) 6283 2381

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU00/01015

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed.
- ☒ the description, pages , as originally filed,  
pages 1-5, filed with the demand,  
pages , received on with the letter of
- ☒ the claims, pages , as originally filed,  
pages , as amended (together with any statement) under Article 19,  
3 pages, filed with the demand,  
pages , received on with the letter of
- ☒ the drawings, pages , as originally filed,  
pages 6-8, filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3)

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement:

Novelty (N)	Claims 1-6	YES
	Claims	NO
Inventive step (IS)	Claims	YES
	Claims 1-6	NO
Industrial applicability (IA)	Claims 1-6	YES
	Claims	NO

## 2. Citations and explanations (Rule 70.7)

INVENTIVE STEP (IS) Claims 1-6:

- (a) US 5201785 A
- (b) US 5579554 A
- (c) US 4188719 A
- (d) US 4884340 A (NEWMAN) 5 December 1989      new citation.

None of the above documents also cited in the corresponding international search report (except (d)) discloses all of the features of the Claims, but when combined and as would be obvious to a person skilled in the art would disclose all the features of the Claims.

## Claim 1:

For example document (a) see column 1 line 8 to column 4 line 43 and Figures 1-3, wherein it clearly discloses a attachment conversion unit such as a disc-shaped disc holder (10), comprising a drive unit adaptor such as a mounting hub (15), and a drive unit base such as a flat annular portion (18), various rotary utensil are attachable to the base of the conversion unit such as a flexible abrasive sheet (21).

It is well known to convert conventional lawn trimmers into devices that perform non cutting functions by replacing the head of a lawn trimmer with a conversion attachment, see ie document (d) column 1 lines 54-62. It is also well known to attach various rotary attachments through a conversion unit to the drive shaft of a hand held device such as a drill.

It would be obvious to a person skilled in the art to adapt the disc-shaped disc holder to the drive shaft of a lawn trimmer and thereby merely arrive at the invention claimed without using his or her inventive faculty. Therefore the invention as currently defined in the claim does not involve an inventive step.

(See Supplemental Box I)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

- (a) As a result of the amendments there are description and claims pages not consecutively numbered, and drawings pages are included between the description pages and claims pages.
- (b) According to PCT Rule 11.7 and Administrative Instructions Section 207 the elements of the international application should be placed in the following order: the description, the claims, the Abstract and the drawings.

Also the sequential numbering of the pages should be using separate series of numbering ie:

- the first series commencing with the first page of the description and continuing through the claims pages and ending with Abstract (ie 1-8 if there are 5 description and 2 claims pages, and 1 Abstract page).
- the second series applying to the pages of the drawings only and commencing with the first drawing, page ie if there are three drawings pages the numbering should be 1/3, 2/3, 3/3.

Similarly it is preferred to number every fifth line of each page of the description and claims pages.

Note that the first page of the description is numbered 1. It is not appropriate to include a face page to the description of a PCT application as has been provided by amendment (also as an originally filed page). Such a face page does not comply with PCT Rule 5.1.

- (c) You have changed the title of the invention in your amended pages. This is not appropriate. The title should remain as indicated in the International Search Report, namely **CLEANING CONVERSION UNIT**.
- (d) The descriptive preamble paragraph at the top of the first claim page is inappropriate. The preamble to the claims should merely be "The claims defining the invention are as follows:"
- (e) Claim 7 does not comply with Rule 6.2(a) because the claims should not rely on references to the description or the drawings.
- (f) Pages of the description, claims and drawings should not include any header or footer markings other than page numbering.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/AU00/01015

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

## 1. Claims are generally not clear, because:

- the claims should be drafted preferably in one sentence using commas instead of periods,
- of the multiple appendancy.

## 2. To overcome the multiple appendancy objection it is preferred to draft the claims page it as follows.

"The claims defining the invention are as follows:

1. A cleaning attachment conversion unit....(with all the features already mentioned in the amended claim, but omitting the reference to the following claims and the periods).
2. The conversion unit of Claim 1 wherein the drive unit adaptor comprises a ....(with the additional features as already mentioned in the amended claim and again omitting the references to a following claim).
3. The conversion unit of Claim 1 wherein the drive unit base is comprised of an....(omitting periods).
4. The conversion unit of Claims 1 and 2 wherein the attachments comprise ....(omitting periods).
5. (similarly as above).
6. (similarly as above)."

## 3. Claim 1 is not clear. Claim 1, line 1 refers to "an attachment conversion unit", but in line 9 it refers to "the cleaning conversion unit". To make the claim clear in this regard, claim 1 should commence "A cleaning conversion unit" or "A cleaning attachment conversion unit".

## 4. Claim 5 is not clear because in lines 3 and 4 it refers to "the locating hole" and "the castellated teeth" respectively, however these features are not mentioned in Claim 1 to which Claim 5 is appended. To make the claim clear in this regard, Claim 5 should be appended to Claim 2, where these features are introduced for the first time.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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Supplemental Box 1

(To be used when the space in any of the preceding boxes is not sufficient.)

Continuation of Box V

Claims 2, 5:

The additional features introduced by these claims are disclosed in the above documents as follows:

- locating hole document (b) see column 4 lines 14-15, Figures 1, 3 item 12.
- castellated teeth document (b) see column 3 lines 31-35, Figures 1-3 items 7-8.

It is considered that the difference in number of castellated teeth or notches ie three in the document and six as claimed in the claims is a mere variation in number therefore does not involve an inventive step.

Claim 3, 6:

The additional features of this claim are disclosed in the above documents as follows:

- a circular stepped drive socket document (a) column 3 lines 1-7, Figure 2 item 15.
- a flat base document (a) column 3 lines 11-12, Figure 2 item 18.
- hook and loop product document (a) col 3 lines 18-20, Figure 1 item 14.
- a recessed fixing surface document (c) column 6 lines 47-51, Figure 8( s. dashed lines).

Document (c) discloses a hexagonal nut(136) on an arbor shaft forming a non-circular drive section whereas the drive socket of the claim has a square drive. However, this difference is a mere variation in shape and as such does not involve an inventive step.

Claim 4:

The additional features of the claim are disclosed in document (a):

- disc see column 3 lines 18-42 and Figures 1-2, item 21.

The flexible abrasive disc in one example has an outside diameter of about 100 mm and a thickness of 5-10 mm, whereas the disc of the claim has a diameter of 125 mm and a thickness up to 50 mm. However, this difference is a mere variation in size and therefore does not involve an inventive step.

The additional features of the claim merely amount to common general knowledge and hence do not involve an inventive step.

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**AUSTRALIAN  
PATENTS ACT 1990**

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**ATTACHMENT CONVERSION UNIT**

(NB. Formally entitled 'Adaptors To Fit Multipurpose Scrubbers To Brushcutters' and 'Cleaning Conversion Unit')

This amended description and design requirements are for an extension of, and to replace the original PCT Application No. PCT/AU00/01015.

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This invention is designed to fit most WHIPPER SNIPPERS AND BRUSHCUTTERS as herein described. Other models may be readily converted by local mower shops. References to the accompanying explanation and drawings are the sole property of: -

Applicants: **STOCAS AUSTRALIA PTY LTD**  
ACN: 094 270 569

Registered Office: c/- **CASS LEGAL GROUP Lawyers,**  
58 Railway Street,  
Mudgeeraba, Queensland 4213  
Australia

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The following statement is a full description of this invention, including the best method of operation and performing it known to me:

ATTACHMENT CONVERSION UNIT

It is essential that the "improvements" (ie buildings, driveways, paths, walls etc) to real property, and plant and equipment (including vehicles), be properly maintained. Many businesses and individuals have a need for a simple tool that will provide a cost-effective way to effect such maintenance.

This new invention offers a powerful hardware attachment solution, which utilises the mobility of *existing* small-business and domestic garden devices (such as brushcutters, whipper snippers, grass trimmers and the like), transforming the said device into a powerful multi-purpose tool. Through its high speed rotating action, it is designed to assist in the maintenance and cleaning of surfaces, including but not limited to the removal of paint, dust, moulds, stains, grease and oil, etc.

PRIMARY COMPONENTS

It is made up of two main components, being a "*drive unit adaptor*" (hereinafter referred to as the "*Adaptor*") (refer Figures 4 – 6 on Page 7 hereto) and a "*drive unit base*" (hereinafter referred to as the "*Base*") (refer Figures 1 – 3 on Page 6 hereto), which enables the fitting of this invention [in replacement of the existing string-line cutting head] to most brushcutters (also known as whipper snippers, grass trimmers etcetera) of differing makes, for the purpose of attaching various forms of either a 'BRUSH, SCOURER, SANDER or MOP and other accessory attachments as the case may be'.

SIMPLE FITTING INSTRUCTIONS

The Adaptor (if required) and Base replaces the flexible string-line cutting head, commonly used in most brushcutters.

The first part of this simple conversion is achieved when the existing head is removed from the brushcutter by unscrewing the central (outer spool) threaded arbor lock-nut. The base is designed with a *square-drive* shaft that fits directly onto any brushcutter having a *square-drive arbor*. The Adaptor facilitates further conversion to a greater range of Brushcutters, by enabling the base to be fitted to devices having the alternative, *hexagonal-drive arbors*. In that case, the male drive of the adaptor slides neatly into the female drive of the base, utilising the original threaded arbor lock-nut to secure both components. Once the base is fitted the brush, scourer, sander, mop or other attachment may be fitted to the Base by pressing firmly onto the hook and loop attachment face.

MATERIALS

The Adaptor and the Base will be made of compressed or injected polypropylene or nylon to comply with ASA design standards and regulations.

DIAGRAMS

To assist with understanding this invention, diagrammatic reference will be made as follows:-

Figure 1, page 6: Shows the top elevation of the Drive Unit Base.

Figure 2, page 6: Shows the side elevation of the Drive Unit Base.

Figure 3, page 6: Shows the bottom elevation of the Drive Unit Base.  
Note: This is the face that the accessory line attachments are affixed to.

Figure 4, page 7: Shows the bottom elevation of the Drive Unit Adaptor.

Figure 5, page 7: Shows the side elevation of the Drive Unit Adaptor.

Figure 6, page 7: Shows the top elevation of the Drive Unit Adaptor.

Figure 7, page 8: Shows the side elevation of the said components of the invention, being the Drive Unit Adaptor and the Drive Unit Base. In addition this figure shows components/suggested accessories attachments that will affix to the head of the Drive Unit Base.

BASE COMPONENTRY (refer fig. 7, page 8)

Numbered references to the description as follows:

A DRIVE UNIT BASE

- 1            **Base head surface for attachment of cleaning accessories.**  
The cleaning accessories are attached using a unique industrial strength hook and loop product, that enables a firm and secure fix in accord with Australian safety standard requirements.
- 2            **Void internal area for fixing nuts.**  
The internal surface is recessed approximately 20mm (depth) and 50mm (wide) to accommodate different size screws and lock-nuts of differing models of brushcutters.
- 3            **14mm locating hole.**  
The drive shaft incorporates a 14mm centred hole for easy assembling.
- 4            **Outer drive shaft unit.**  
The drive shaft consists of a 34mm circular body (width) by 33mm (length) approximately.
- 5            **19mm square female internal drive.**  
This square female internal drive is compatible to many square drive arbors fitted to straight drive brushcutters.
- 6            **Spacings to Shorten Drive Units (if required).**  
We note that, given the large range of brushcutter devices on the world market, there may be the occasion when the threaded-drive arbor of the particular brushcutter device is not long enough to fully penetrate the *drive unit adaptor* and/or the *drive unit base* (as the case may be), therein allowing the lock-nut (ie. inside the void referred to at Item 2) to be safely secured.

To allow for this, the female drive shaft of the *drive unit base* is configured in three sections or steps (refer Fig. 2, page 6), and is designed to be readily and easily shortened by severing either 5mm or 10mm off the length of the female drive shaft.

B. DRIVE UNIT ADAPTER

**6 lug Drive Unit Adapter.**

The 6 lug Drive Unit Adapter will fit most bent shaft whipper snippers. Installation of this unit will enable conversion of hexagonal drives to square drives, and therein the attachment of the drive unit base by sliding the male drive of the Adapter (ie. Item 7) into the female internal drive shaft of the base (ie. Item 5).

**7 19mm square male drive.**

This square female internal drive will accept the square male drive of the adapter unit (refer fig. 7, page 3).

**8 11mm locating hole for the adaptor.**

The 11mm hole will centralise the adaptor on the shaft.

**9 Lugs**

The lugs clip into the brushcutter/whipper snipper unit slots, to replace the original head that is then removed.

DRIVE UNIT BASE - ELEVATIONS

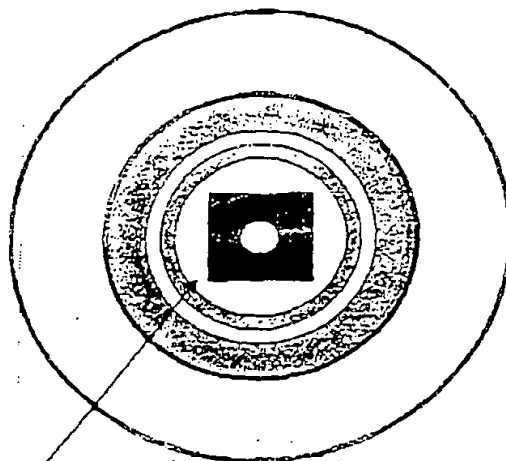


Fig. 1 : Top Elevation

Female Drive Shaft

(ie. drive unit "adaptor" attachment)

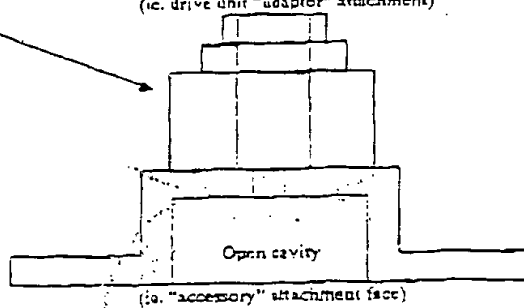


Fig. 2 : Side Elevation

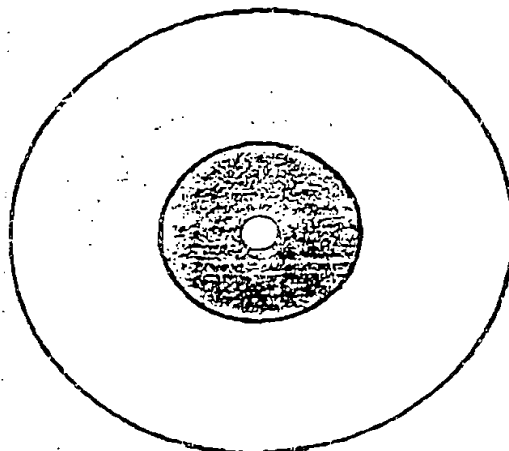


Fig. 3 : Bottom Elevation  
(ie. accessory attachment face)

DRIVE UNIT ADAPTER - ELEVATIONS

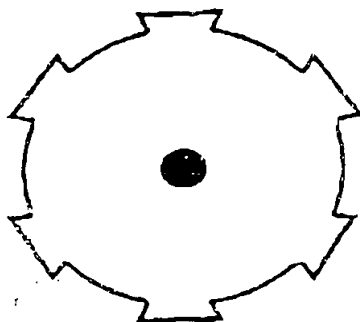


Fig. 4: Bottom Elevation  
(Connecting face)

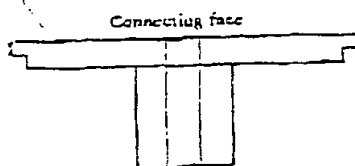


Fig. 5: Side Elevation

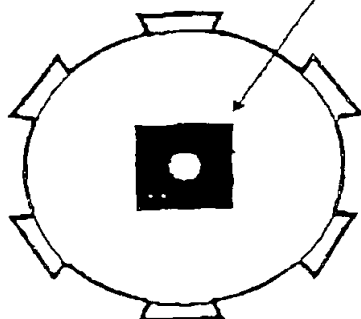
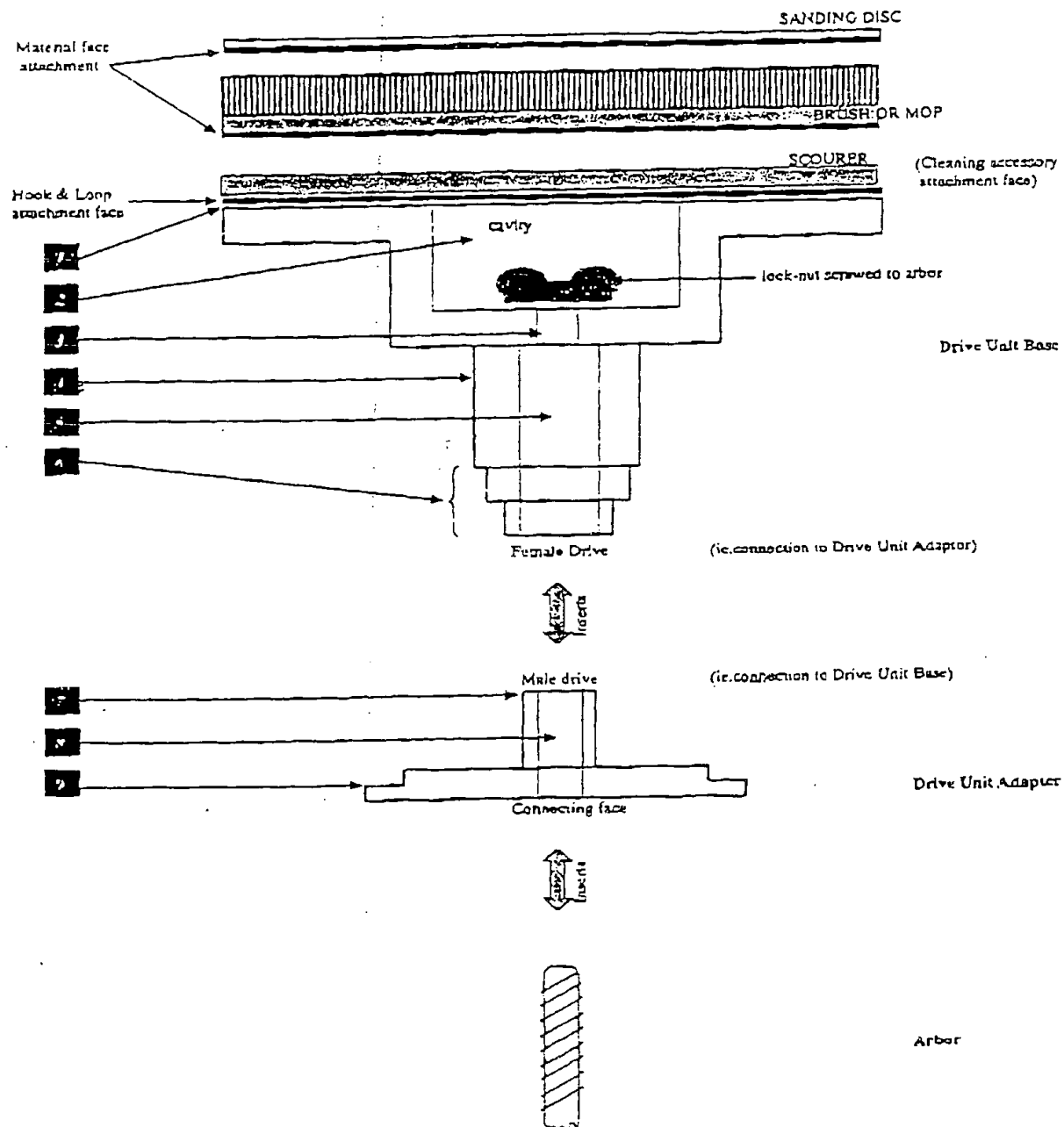


Fig. 6: Top Elevation (male drive)

DRIVE UNIT "BASE" & DRIVE UNIT "ADAPTOR" & ACCESSORY LINES - SIDE ELEVATION

Figure 6



ATTACHMENT CONVERSION UNIT

This invention provides for an extension of the use of brushcutters (also known as whipper snippers and/or grasstrimmers) as an economical conversion to a multipurpose maintenance tool, by the attachment and use of a specifically designed base unit and adaptor (where required), to which various orbital maintenance accessory attachments may be affixed.

The claims defining the invention are as follows:

- CLAIM 1.** An attachment conversion unit designed as a single general inventive concept that is attached to the drive shaft of most brushcutters (or whipper snipper and other such devices as the case may be). The attachment conversion unit comprises a drive unit adaptor (and according to and further referred to at CLAIM 2 and CLAIM 5), and a drive unit base (and according to and further referred to at CLAIM 3 and CLAIM 6). In addition, the attachment conversion unit also comprises various rotary cleaning utensil attachments such as, a brush, scourer, sander, mop or other suitable accessory lines as may be developed, which are attached to the base of the cleaning conversion unit (hereinafter referred to as the "attachments" and according to and further referred to at CLAIM 4).
- CLAIM 2.** The drive unit adaptor of the attachment conversion unit according to and referred to in CLAIM 1 and CLAIM 5 herein, comprises a circular plate with six (6) castellated teeth. In addition the drive unit adaptor has a fixed central square drive shaft with a centred locating hole.
- CLAIM 3.** The drive unit base of the attachment conversion unit according to and referred to in CLAIM 1 herein is comprised of an enlarged round head with a flat base to which a hook and loop product is attached for the purpose of fixing the various cleaning attachments. The base is approximately 58 millimetres tall, having a top elevation comprising a circular stepped drive socket which has a square drive centrally located at the top of the base unit. The bottom elevation depicts the attachment fixing surface, and to which, centrally located in circular form, is a recessed (approximately 20 millimetres) fixing surface through which the threaded drive arbor protrudes and to which the locating lock-nut is affixed, securing the invention to the brushcutter device.

AMENDED SHEET  
IPER/AL

**CLAIM 4.** The attachments of the attachment conversion unit according to and referred to in CLAIM 1 and CLAIM 2 herein comprise:

- (a) Circular scourers [disks] having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said standard plastic and/or nylon disk which is pre-manufactured by way of interlocking thread and which may be provided in a range of grades of coarseness (treated). To enable the proper attachment of the *disk* to the hook surface of the drive unit base, the *disk* provides on one spherical surface, a compatible material which enables fixation to the hooking mechanism.
- (b) Circular sanding disk having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said standard disk which is pre-manufactured by way of interlocking woven thread [or other treatment] and which may be provided in a range of grades of coarseness (treated). To enable the proper attachment of the *sanding disk* to the hook surface of the drive unit base, the sanding disk provides on one spherical surface of the sanding disk a compatible material which enables fixation to the hooking mechanism.
- (c) Circular brush head having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said brush head which is pre-manufactured and which may be provided in a range of grades of bristles. To enable the proper attachment of the brush head to the hook surface of the drive unit base, the *brush head* provides on one spherical surface, a compatible material which enables fixation to the hooking mechanism.
- (d) Circular mop head having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said mop head which is pre-manufactured, may be provided in a range of grades. To enable the proper attachment of the *mop head* to the hook surface of the drive unit base, the head provides on one spherical surface of the *mop head* a compatible material which enables fixation to the hooking mechanism.
- (e) Any other attachment not referred to herein which may by effect utilise the rotary nature of the invention together with the utility and power of the brush cutter.

**CLAIM 5.** The drive unit adaptor of the attachment conversion unit according to and referred to at CLAIM 1 attaches directly to the driving spindle (arbor) of the brushcutter (or whipper snipper as the case may be) by firstly inserting the arbor in the locating hole of the drive unit adaptor and then by turning and locking the castellated teeth into the notches of the brushcutter spool.

**CLAIM 6.** The drive unit base of the attachment conversion unit according to and referred to at CLAIM 1 and CLAIM 3 is then attached to the drive unit adaptor referred to at CLAIM 1 and CLAIM 2, by inserting the male "drive" shaft of the drive unit adaptor into the female "drive" socket of the drive unit base. The multi-purpose maintenance attachments of the attachment conversion unit referred to at CLAIM 1 and CLAIM 4 herein, are attached to the drive unit base by pressing the attachment onto the hook and loop surface of the drive unit base.

**CLAIM 7.** The parts of the of the total attachment conversion unit according to and described herein in CLAIMS 1 through 6 as herein described with reference to the accompanying drawings.

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## CLEANING CONVERSION UNIT

Many businesses and individuals have a need for a simple (yet powerful) rotating tool to clean dirty surfaces.

This new invention offers a powerful cleaning solution, which utilises the mobility of *common* small-business and domestic garden tools. It is designed to assist the cleaning of dirty surfaces, including but not limited to dust, moulds, stains, grease and oil, etc.

### PRIMARY COMPONENTS

It is made up of two main components, being a “*drive unit adaptor*” (hereinafter referred to as the “*Adaptor*”)(refer Annexures Fig 2) and a “*drive unit base*” (hereinafter referred to as the “*Base*”)(refer Annexures Fig 1), which enables a replacement fitting to most brushcutters (otherwise known as whipper snippers as the case may be) of different makes, for the purpose of attaching various forms of either a ‘BRUSH, SCOURER, SANDER or MOP’.

### SIMPLE FITTING INSTRUCTIONS

The **Adaptor** and **Base** replaces the flexible nylon-string head, (or blade as the case may be), commonly used in most brushcutters. The **Adaptor** is designed with a square drive that fits straight onto any square-drive brushcutter. In addition the **Adaptor** is designed to convert hexagonal drive brushcutters to square drive to accept the adaptor **Base**. The adaptor utilises the original nut to secure the **Base**. Once attached, the **Base** accepts a variety of either a brush, scourer, sander or mop attachment by pressing firmly onto the newly attached base.

The first part of this simple conversion is achieved when the existing head is removed by unscrewing the central (outer spool) lock-nut. The **Adaptor** is then attached to the outer spool of the-Brushcutter. The **Base** is then attached to the **Adaptor** and the lock-nut screwed back in place.

## MATERIALS

The **Adaptor** and the **Base** will be made of compressed or injected polypropylene or nylon to comply with ASA design standards and regulations.

DIAGRAMS

To assist with understanding this invention, diagrammatic reference will be made as follows:-

- Annexure 1:** Shows the the side elevation of the two (2) components of the invention, being the **Adaptor** (refer fig 2: drive unit adaptor) and the **Base** (refer fig 1: drive unit base).
- Annexure 2:** Shows the side elevation and measurements.
- Annexure 3:** Shows the top elevation of the **Base** fig. 1(a) and the **Adaptor** fig. 2(a).
- Annexure 4:** Shows the bottom elevation of the **Base** fig. 1(a) and the **Adaptor** fig. 2(a).
- Annexure 5:** Shows all the components and accessories that will attach to the head of the **base**.

Numbered references to the description as follows:

DRIVE UNIT BASE

- 1        **Base head surface for attachment of cleaning accessories.**  
  
The cleaning accessories are attached using a unique industrial strength velcro-style product, that enables a firm and secure fix in accord with Australian safety standard requirements.
- 2        **Void internal area for fixing nuts.**  
  
The internal surface is recessed 20mm (depth) and 50mm (wide) to accommodate different size screws and lock-nuts of differing models of brushcutters.
- 3        **Outer drive shaft unit.**  
  
The drive shaft consists of a 34mm circular body (width) by 33mm (length).
- 4        **14mm locating hole.**  
  
The drive shaft incorporates a 14mm centred hole for easy assembling.
- 5        **19mm square female internal drive.**  
  
This square female internal drive is compatible to many square drive arbors fitted to straight drive brushcutters.
- 6        **19mm square male drive.**  
  
This square female internal drive will accept the square male drive of the adapter unit (refer fig.2).

DRIVE UNIT ADAPTER**7            6 lug Drive Unit Adaptor.**

The 6 lug Drive Unit Adapter (fig. 2) will fit into the body of most bent shaft whipper snippers. Installation of this unit will enable conversion of hexagonal drives to square drives, and therein the attachment of the universal base (fig. 1), by sliding the female square internal drive (ie. Item 5) over the male square of the Adapter (ie. Item 6) as previously explained.

**8            Lugs**

The lugs clip into the brushcutter/whipper snipper unit as per the original head that is to be removed.

**9            11mm locating hole for the adaptor.**

The 11mm hole will centralise the adaptor on the shaft.

**10          Base of internal surface (locking nuts).**

Once fitted together, check that the threaded shafts are through far enough into the void cavity [ie. item 2] to be able to tighten the nuts and secure all the components tightly.

**11          Cut lines 5mm spacings to shorten drive units (if required).**

If the threaded shaft is below the lock-nut securing surface (ie. inside the void referred to at Item 2) there are three (3) cut lines marked at 5mm spacings. To enable utility of this product by most brushcutters, a total of 15mm can be removed to lower the components onto the shaft.

- (c) Circular brush head having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said brush head which is pre-manufactured and which may be provided in a range of grades of bristles. To enable the proper attachment of the brush head to the hook surface of the drive unit base, the *brush head* provides on one spherical surface, a compatible material which enables fixation to the hooking mechanism.
- (d) Circular mop head having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said mop head which is pre-manufactured, may be provided in a range of grades. To enable the proper attachment of the *mop head* to the hook surface of the drive unit base, the head provides on one spherical surface of the *mop head* a compatible material which enables fixation to the hooking mechanism.
- (e) Any other attachment not referred to herein which may by effect utilise the rotary nature of the invention together with the utility and power of the brush cutter.

**CLAIM 5.** The drive unit adaptor referred at CLAIM 1 attaches directly to the driving spindle of the brush cutter (or whipper snipper as the case may be) by turning and locking the castellated teeth into the notches of the brushcutter spool.

**CLAIM 6.** The drive unit base referred to at CLAIM 2 is then attached to the drive unit adaptor by inserting the male "driven" shaft of the drive unit adaptor into the female "driving" socket of the drive unit base. The multi-purpose cleaning attachments referred to at CLAIM 4 herein, are attached to the drive unit base by pressing the attachment onto the hook and loop surface of the drive unit base.

**CLAIM 7.** The parts of the invention described herein in CLAIMS 1 through 6 as herein ...described with reference to the accompanying drawings.

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This invention provides for an extension of the use of brushcutters(also known as whipper snippers) by the attachment and use of specifically designed Adaptors for the fitting of a multi-purpose base for the utility of various orbital scrubbing, cleaning and sanding devises.

The claims defining the invention are as follows:

- CLAIM 1.** A cleaning conversion unit which is made of a drive unit adaptor (hereinafter referred to as the "adaptor"), a drive unit base (hereinafter referred to as the "base") and various rotary attachments such as, a brush, scourer, sander or mop.
- CLAIM 2.** The drive unit adaptor comprises a circular plate with six (6) castellated teeth. In addition the drive unit adaptor has a fixed central square fixed drive shaft with a centred locating hole.
- CLAIM 3.** The drive unit base referred to in CLAIM 1 herein is comprised of an enlarged round head with a flat base to which a hook and loop product (similar to velcro) is attached for the purpose of fixing the various cleaning attachments. The base is approximately 58 millimetres tall and comprises further a circular stepped driven shaft which has a square drive recess centrally located at the top of the base unit. On the attachment fixing surface, centrally located in circular form is a recessed (approximately 20 millimetres) fixing surface for the locating wing nut.
- CLAIM 4.** The attachments referred to in CLAIM 1 herein comprise:
- (a) Circular scourers [disks] having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said standard plastic and/or nylon disk which is pre-manufactured by way of interlocking woven thread and which may be provided in a range of grades of coarseness (treated). To enable the proper attachment of the *disk* to the hook surface of the drive unit base, the *disk* provides on one spherical surface, a compatible material which enables fixation to the hooking mechanism.
  - (b) Circular sanding disk having a diameter of approximately 125 millimetres and a thickness up to 50 millimetres, said standard disk which is pre-manufactured by way of interlocking woven thread [or other treatment] and which may be provided in a range of grades of coarseness (treated). To enable the proper attachment of the *sanding disk* to the hook surface of the drive unit base, the sanding disk provides on one spherical surface of the sanding disk a compatible material which enables fixation to the hooking mechanism.